

## DEPARTMENT OF CHEMICAL ENGINEERING

## CHEMICAL ENGINEERING

NORTHEAST STATE COMMUNITY COLLEGE

## DEGREE: ASSOCIATE OF SCIENCE

**Freshman Year**

CHEM 1110, 1120	General Chemistry I, II	8
ENGL 1010, 1020	Composition I, II	6
ENGR 1120	Engineering Programming	3
MATH 1910, 1920		
	Calculus I, II	8
	Humanities/Fine Arts Elective	3
	Social/Behavioral Science Elective	3
SPCH 2300	Public Speaking	3
	<b>Total</b>	<b>34</b>

**Sophomore Year**

CHEM 2010, 2020	Organic Chemistry I, II	8
ENGL	Literature	3
HIST 2010, 2020	United States History I, II <sup>1</sup>	6
MATH 2110	Calculus III	4
MATH 2120	Differential Equations	3
PHYS 2110, 2120	Calculus-Based Physics	8
	Humanities/Fine Arts Elective	3
	Social/Behavioral Science Elective	3
	<b>Total</b>	<b>38</b>

TENNESSEE TECHNOLOGICAL UNIVERSITY  
CHEMICAL ENGINEERING - BACHELOR OF SCIENCE DEGREE

Advisor: Dr. Pedro Arce, Department Chairperson

Prescott Hall 214, Phone: (931) 372-3297

(Recommend the advisor be contacted prior to transfer.)

**Junior Year<sup>2</sup>**

CHE 1520	Intro to Chemical and Biological Process Analysis and Scaling I	3
CHE 2020	Intro to Chemical and Biological Process Analysis and Scaling II	3
CHE 3010	Thermodynamics of Chemical Processes	3
CHE 3021	Separations and Solutions Thermodynamics	4
CHE 3111	Transfer Science I: Conduction, Radiation, and Diffusion	4
CHE 3121	Transfer Science II: Fluid Mechanics	4
CHE 3730	CHE Operations	3
CEE 2110, ECE 3810 or BIOL 3200		3
Technical Elective <sup>3</sup>		3
	<b>Total</b>	<b>29</b>

**Senior Year**

CHE 4131	Transfer Science III: Diffusion and Diffusive-Convection Mass Transfer	4
CHE 4210	Chemical Reaction Engineering	4
CHE 4240	CHE Capstone Laboratory	1
CHE 4410, 4420	Process Design I, II	6
CHE 4540	Process Dynamics & Control	3
ChE Technical Electives <sup>4</sup>		6
CHE 4910	Professionalism and Ethics in CHE	1
CHEM 3510, 3520	Physical Chemistry	8
	<b>Total</b>	<b>33</b>

<sup>1</sup>HIST 2010 and 2020 United States History I, II are not required for the Bachelor of Science degree in Chemical Engineering.

<sup>2</sup>Students must apply to the CHE Fast-Track MS program by the end of their second junior term.

<sup>3</sup>Three hours of Technical Electives can be from any of the following courses:

a. Any College of Engineering course at the 3000 or 4000 level.

b. Any BIOL/CHEM/MATH/PHYS at the 3000 or 4000 level.

c. CEE 2100

d. Any course with the prior approval of the ChE Undergraduate Program Coordinator.

e. Note that CEE 2100, BIOL 3200 and ECE 3810 cannot count both as a Technical Elective and as part of the CEE 2100/ECE 3810/BIOL 3200 option.

<sup>4</sup>Three hours of ChE Technical Electives must come from one of the following courses:

a. ChE 4330 – Polymer Engineering

b. ChE 4661 – Transport in Biochemical and Biological Processes

c. ChE 4950 – MEMS

d. ChE 4990 – Undergraduate Research

*Students must complete 60 hours at senior institution with 36 hours of upper-division credit at the 3000-4000 level.*